Before the
**FEDERAL COMMUNICATIONS COMMISSION**
Washington, DC 20554

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| In the Matter of | ) | |
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| Update to Parts 2 and 25 Concerning Non-Geostationary, Fixed-Satellite Service Systems and Related Matters | ) | IB Docket No. 16-408 |

To: The Commission

**OPPOSITION OF**
**THE BOEING COMPANY**

The Boeing Company ("Boeing"), through its counsel and pursuant to Section 1.429(f) of the Commission's rules, hereby opposes portions of the petitions for reconsideration that were filed by Worldvu Satellite Limited ("OneWeb") and ViaSat, Inc. ("ViaSat")[1] The Commission should reject OneWeb's request to reconsider the Commission's long standing band splitting requirement for non-geostationary satellite orbit ("NGSO") systems during inline events. The Commission should also decline ViaSat's requests to initiate a new proceeding to reexamine the EPFD limits for NGSO systems to protect geostationary satellite orbit ("GSO") networks.

## I. THE COMMISSION WAS FULLY JUSTIFIED IN MAINTAINING ITS DEFAULT BAND SPLITTING REQUIREMENT FOR INLINE EVENTS BETWEEN UNCOORDINATED NGSO FSS SYSTEMS

OneWeb sought reconsideration of a discrete aspect of the Commission's sharing rules for NGSO FSS systems, *i.e.*, the requirement that, during an inline event, the NGSO system operators must split the available spectrum in the absence of some other coordinated arrangement.

[1] Petition for Reconsideration of Worldvu Satellites Limited, IB Docket 16-408 (Jan. 17, 2018) ("*OneWeb Petition*"); Petition for Reconsideration of ViaSat, Inc., IB Docket 16-408 (Jan. 17, 2018) ("*ViaSat Petition*").

As a preliminary matter, OneWeb's petition cannot be granted because it was not timely filed. The Commission adopted its band splitting requirement for inline events in 2002 for the Ku-band[2] and in 2003 for the Ka-band,[3] both of which were codified in Section 25.261.[4] The Commission's 2016 NPRM did not seek comment on changing this rule, it proposed only to extend the rule to certain additional frequency bands[5] and to possibly change the coordination trigger for inline events.[6] Consistent with this, the Commission's 2017 Order did not change the band splitting requirement.[7] It is therefore impermissible for OneWeb to seek reconsideration of a decision that was adopted and has remained unchanged for more than a decade.[8]

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[2] *See* Establishment of Policies and Service Rules for the Non-Geostationary Satellite Orbit, Fixed Satellite Service in the Ku-band, *Report and Order*, 17 FCC Rcd 7841,7857, ¶ 53 (2002) ("*Ku-band NGSO FSS Service Rules Order*").

[3] *See* Establishment of Policies and Service Rules for the Non-Geostationary Satellite Orbit, Fixed Satellite Service in the Ka-band, *Report and Order*, 18 FCC Rcd 14708, 14722, ¶ 45 (2003) ("*Ka-band NGSO FSS Order*").

[4] *See* 47 C.F.R. § 25.261.

[5] Update to Parts 2 and 25 Concerning Non-Geostationary, Fixed-Satellite Service Systems and Related Matters, *Notice of Proposed Rulemaking*, 31 FCC Rcd 13651, ¶ 23 (2016) ("*NPRM*").

[6] *See id.*, ¶ 26.

[7] *See* Update to Parts 2 and 25 Concerning Non-Geostationary, Fixed-Satellite Service Systems and Related Matters, *Report and Order and Further Notice of Proposed Rulemaking*, 32 FCC Rcd 7809 (2017) ("*NGSO FSS Order*").

[8] OneWeb challenges in its petition the Commission's justification for its actions in the Order. The specific justification that OneWeb challenges, however, was not related to the Commission's retention of its band splitting requirement for inline events, but was instead related to the Commission's rejection of Telesat's proposal to use ITU priority as a replacement for the inline event trigger. Specifically, the Commission explained that "[i]n contrast to a $\Delta T/T$ of 6 percent threshold, Telesat's proposal to award priority to a single NGSO FSS operator according to the date of receipt of its ITU coordination request would give no certainty to other operators that they may use any portion of the spectrum absent that operator's consent." *NGSO FSS Order*, ¶ 50. OneWeb claims that this reasoning does not justify the Commission's retention of its band splitting requirement during inline events, *see OneWeb Petition* at 3, but that was not the issue that the Commission was addressing when it reached its conclusion.

Further, the Commission should not entertain OneWeb's request because it is directly contrary to the competition and public interest goals that the Commission sought to advance. The Commission adopted its band splitting requirement to ensure that NGSO systems "within a given processing round can coordinate with equal rights."[9] In stark contrast, OneWeb advocates an approach in which the NGSO system with the highest ITU priority can use all of the spectrum during an inline event and NGSO systems with lower priority must "design around the higher priority system."[10] Regardless of what OneWeb claims, this does not "benefit[] all applicants equally,"[11] nor does it give all NGSO FSS systems in the same processing round equal rights to the spectrum.

In arguing that an ITU priority approach would be reasonable, OneWeb alludes to the sharing situation between its proposed NGSO system and the higher priority Ka-band NGSO systems operated by O3b and proposed by Telesat. OneWeb claims that it designed its system to avoid inline events with O3b and Telesat, alleviating the need for band splitting.[12] OneWeb, however, is using the Ka-band only for feeder links, with its service links in the Ku-band. Therefore, although designing its feeder links around the Ka-band NGSO systems operated by O3b and proposed by Telesat may have been challenging, it was insignificant compared to the complexity of designing service links to protect the service links of one or more NGSO FSS systems with higher ITU priority.

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9 *See NGSO FSS Order*, ¶ 45; *see also Ku-band NGSO FSS Service Rules Order*, ¶ 9 ("we seek to ensure that all applicants have equal access to spectrum").

10 *OneWeb Petition* at 4.

11 *Id.* at 3.

12 *See id.*

Given the significant size and global reach of many of the NGSO FSS systems that have been proposed, the Commission was completely justified in concluding that the use of an approach that awarded priority to a single NGSO FSS operator with ITU priority "would give no certainty to other operators that they may use any portion of the spectrum absent that operator's consent."[13] OneWeb's proposed approach would effectively enable only one large NGSO FSS system to operate service links in each frequency band, with any subsequent systems relegated to marginal global coverage, at best. This is directly contrary to the public interest goals that the Commission sought to advance.

OneWeb further argues that the ITU priority approach has worked effectively in facilitating the growth of the global satellite industry and would not create a single "winner" between NGSO systems in each frequency band.[14] The ITU, of course, has little experience overseeing coordinations between co-frequency NGSO systems. With respect to GSO systems, however, the ITU priority approach has almost always resulted in a single winner with respect to the placement of GSO satellites at each GSO orbit location using a particular frequency band for service in each hemisphere. This outcome has only modestly hindered the global satellite industry largely because of the Commission's longstanding enforcement of its two degree spacing policy. In contrast, no such option is available to facilitate spectrum sharing between multiple NGSO systems, necessitating the adoption of other sharing requirements, such as the Commission's inline avoidance and band splitting rules.

The Commission adopted its band splitting requirement more than a decade ago to further the Commission's public policy and competition goals. The instant proceeding did not seek to

[13] *NGSO FSS Order*, ¶ 50.

[14] *See OneWeb Petition* at 3 n.10 and 4 n.12.

change this rule, only to extend it to additional frequency bands. Therefore, OneWeb's petition seeking reconsideration of the band splitting rule must be rejected as untimely and inconsistent with the Commission's public interest obligations.

## II. THE COMMISSION SHOULD NOT RECONSIDER ITS INCLUSION INTO ITS RULES OF THE ITU'S EPFD LIMITS FOR NGSO SYSTEMS IN THE KA-BAND

ViaSat petitioned the Commission to reconsider its codification of the EPFD limits on NGSO FSS operations that are included in Article 22 of the ITU Radio Regulations to protect GSO systems.[15] The Commission had proposed to incorporate the ITU's EPFD limits into its rules largely for administrative consistency – the EPFD limits for Ku-band NGSO FSS systems are included in the FCC's rules, but the EPFD limits for Ka-band systems were "omitted."[16] ViaSat opposed this administrative alignment, arguing that "before simply codifying" the limits in the FCC's rules, the Commission should undertake a wholesale reexamination of the EPFD limits and operational rules for NGSO FSS systems to ensure that they will adequately protect GSO networks.[17]

In making this argument, ViaSat acknowledged that its request was beyond the scope of the NPRM. ViaSat explained that the NPRM "does not address" the interference concerns of newly proposed very large NGSO systems "in the context of protecting GSO networks from

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[15] *See ViaSat Petition* at 2-5.

[16] *NPRM*, ¶ 19.

[17] Comments of ViaSat, Inc., IB Docket 16-408, at 11 (Feb. 27, 2017) ("*ViaSat Comments*"); *see also* Reply Comments of ViaSat, Inc., ID Docket 16-408, at 6 (April 10, 2017) (further urging the Commission to "dismiss all pending Ka- and V-band NGSO applications (without prejudice to refiling) and initiate new processing rounds *after* this proceeding has been fully resolved, and new service rules are established and become effective").

NGSO interference."[18] Thus, ViaSat explained, "[t]o the extent necessary, ViaSat supports a further Commission inquiry to ensure these critical issues are evaluated fully, and in an informed and reasoned manner."[19]

The Commission's Order declined to delay its codification of the EPFD limits, explaining that "ViaSat has not proposed any new EPFD limits, and it would not be advisable to remain without Ka-band EPFD limits in our rules pending such deliberations."[20] In challenging this decision, ViaSat treats the Commission's explanation as two separate justifications, when a better reading would be to treat them as one, *i.e.*, *because* no party (including ViaSat) has proposed new EPFD limits, any deliberations on identifying new EPFD limits would result in delay, which is ill-advised.

ViaSat's petition does address this more appropriate interpretation of the Commission's explanation, offering that "any number of alternatives would ensure the protection of GSO networks while allowing NGSO processing rounds to move forward – *e.g.,* authorizing NGSO systems subject to the outcome of a future rulemaking proceeding."[21] The Commission, however, did condition the authorizations of NGSO systems in this manner. Each of the three recently authorized NGSO FSS systems (Worldvu, Telesat Canada and Space Norway) include the following condition in its authorization:

> This grant of U.S. market access and any earth station licenses granted in the future are subject to modification to bring them into

[18] *ViaSat Comments* at 17.

[19] *Id.* at 6.

[20] *NGSO FSS Order*, ¶ 35.

[21] *ViaSat Petition* at 5.

> conformance with any rules or policies adopted by the Commission in the future.[22]

Thus, the Commission has already provided a portion of the relief that ViaSat requested. As for the rest of ViaSat's request – *i.e.*, the initiation of a new proceeding to examine revisions to the ITU's EPFD limits for NGSO FSS systems – it probably would be appropriate for the Commission to explain on reconsideration why it is not initiating a new proceeding at this time.

The record of this proceeding provides ample justification for refraining from initiating such a proceeding. First, there was no consensus among major GSO satellite operators that the existing EPFD limits for NGSO systems in the Ka-band are inadequate. SES/O3b, for example, argued that no need exists to reexamine the existing EPFD limits.[23] Further, they observed that initiating a reexamination at this time could disrupt the significant developments that are currently underway with respect to next-generation NGSO FSS systems.[24] OneWeb also argued that no evidence exists that the existing EPFD limits should be reexamined and further observed that the limits were developed "after exhaustive analyses by ITU study groups," and any action by the FCC to diverge from this international consensus would destabilize investment and growth in the development of NGSO FSS systems.[25]

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[22] WorldVu Satellites Limited, Petition for a Declaratory Ruling Granting Access to the U.S. Market for the OneWeb NGSO FSS System, IBFS File No. SAT-LOI-20160428-00041, *Order and Declaratory Ruling*, FCC 17-17, ¶ 26 (June 23, 2017); Space Norway AS, Petition for a Declaratory Ruling Granting Access to the U.S. Market for the Arctic Satellite Broadband Mission, IBFS File No. SAT-PDR-20161115-00111, *Order and Declaratory Ruling*, FCC 17-146, ¶ 27 (Nov. 3, 2017); Telesat Canada, Petition for Declaratory Ruling to Grant Access to the U.S. Market for Telesat's NGSO Constellation, IBFS File No. SAT-PDR-20161115-00108, *Order and Declaratory Ruling*, FCC 17-147, ¶ 30 (Nov. 3, 2017).

[23] Reply Comments of SES S.A. and O3b Limited, IB Docket 16-408, at 19 (April 10, 2017).

[24] *See id.*

[25] Reply Comments of OneWeb, IB Docket 16-408, at 2-4 (April 10, 2017).

Boeing also argued against reexamining the existing limits, observing that, although newer NGSO FSS systems have been proposed with far greater numbers of satellites, these networks will often employ much narrower, often steerable transmit and receive beams that are far more capable of discriminating in their communications and further protecting GSO networks.[26] Many of the new NGSO FSS systems have also been designed to employ satellite transmit and receive beams that are reconfigurable in orbit, enabling dynamic adjustments to power and coverage.[27] Therefore, NGSO FSS system operators will be able to respond to changing conditions in real time, such as accommodating the launch of additional co-frequency NGSO FSS constellations.

In addition, many of the proponents of next generation NGSO FSS systems possess a substantial economic incentive to protect GSO networks, since many of the companies currently seeking Commission authority to launch NGSO FSS systems are also the global leaders in the operation of GSO FSS networks, including Intelsat (through Worldvu), SES (through O3b), Telesat, and ViaSat.[28] These companies would not risk causing interference to their GSO assets.

Finally, Boeing questioned whether it would be an efficient use of administrative resources (both the Commission's and the satellite industry's) to try to develop new EPFD limits based only on the descriptions of the NGSO FSS systems that have been included in the various NGSO FSS system applications that have been filed with the Commission. Many of the proposed systems are unlikely to launch and those that do may be significantly different than initially proposed.

Therefore, the Commission had ample justification to refrain from initiating a new proceeding on the reexamination of the EPFD limits for NGSO FSS systems operating in the Ka-

[26] *See* Reply Comments of The Boeing Company, IB Docket No. 16-408, at 2 (April 10, 2017).

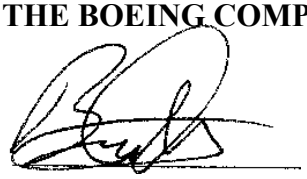
[27] *See id.*

[28] *See id.* at 3.

band. The Commission should therefore so state these justifications in any order that is adopted on reconsideration in this proceeding.

Respectfully submitted,

**THE BOEING COMPANY**

By: 

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## CERTIFICATE OF SERVICE

I, Bruce A. Olcott, hereby certify that on February 20, 2018, I caused a copy of the foregoing Opposition of The Boeing Company to be served by U.S. first-class mail, postage paid, upon each of the following:

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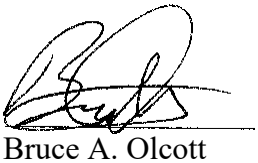

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